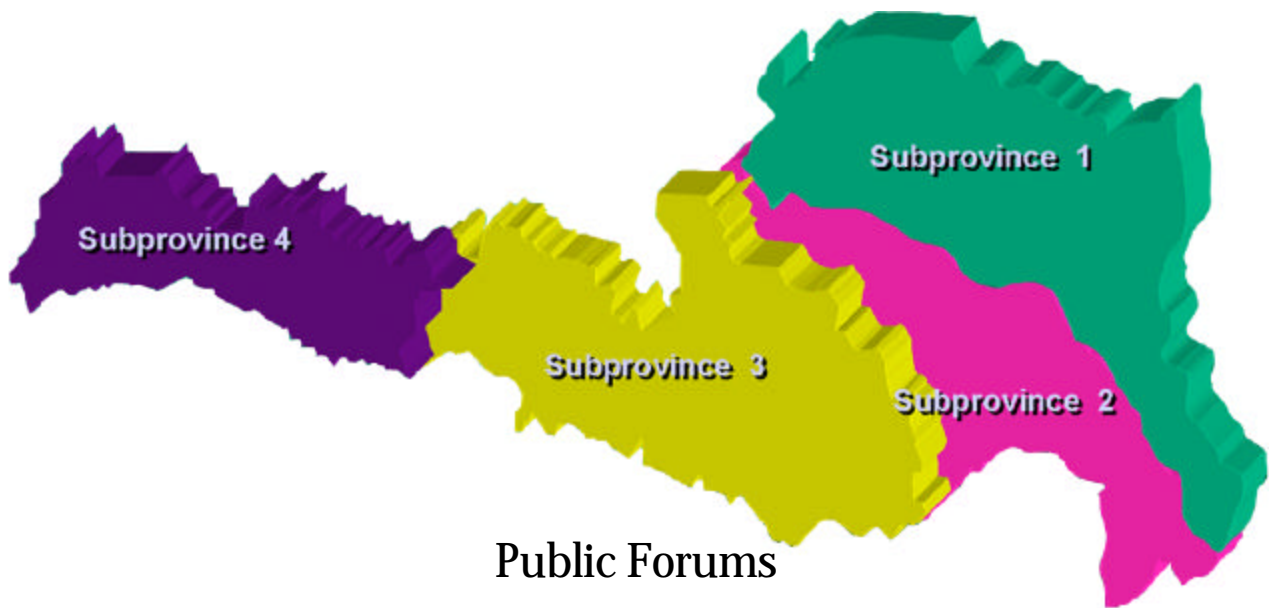


Introduction to Subprovince 4 Alternatives for the LCA Study



Public Forums

Houma – May 27
Lafayette – May 28
Lake Charles – May 29
New Orleans – June 2

In partnership with Louisiana Department of Natural Resources
and U. S. Army Corps of Engineers

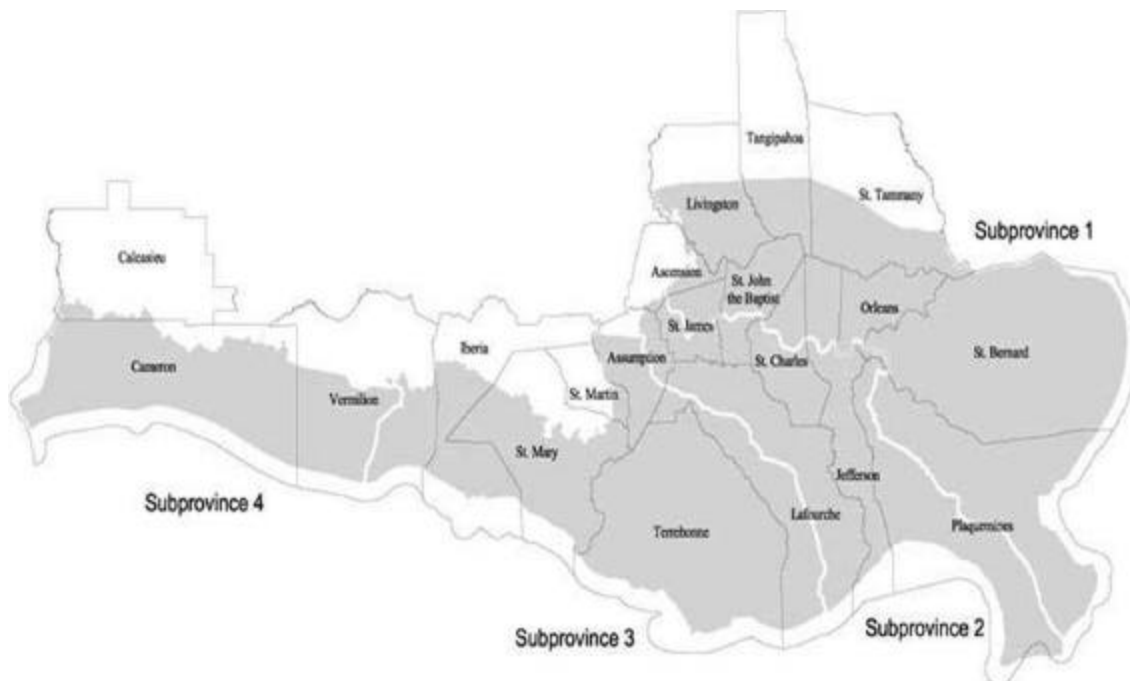


www.coast2050.gov

Introduction

The Coast 2050 Planning Process developed Regional Ecosystem Restoration Strategies through a series of 65 public meetings. Many of these strategies were conceptual in nature and required some level of design to examine potential effects of implementing these strategies. In Phase II of the LCA planning process, over one hundred restoration measures were developed. Measures are specific projects, such as freshwater re-introduction (also known as diversion), marsh creation, and barrier island restoration at specific sites. None of these measures represent a single and complete alternative. Therefore, measures must be combined to form alternatives. With so many measures to choose from, the possible combinations appear limitless. The goal, however, is not to develop as many alternatives as possible; rather, it is to examine different approaches for implementing the strategies in the 2050 plan. In that sense, the alternatives should represent different hypotheses for testing the various strategies in the 2050 plan. Moreover, the alternatives need to be distinct enough to provide for real choice among them. In planning terminology, the alternatives must be “significantly different.”

At the upcoming meetings, the LCA team will discuss these alternatives and their effectiveness. Discussions on these alternatives and how they were put together will be the focus of the open house. This will be followed by orientation and overview on the “no action” plan of the study and what is next in the LCA planning process. Lastly, public participation on the projected effects of these alternatives will take place in an informal and interactive setting. Questions regarding this document or the study in general can be directed to the study managers: Troy Constance at 504-862-2742 and Jon Porthouse at 225-342-9421. Continued public interest and support for the coastal restoration effort is essential to this evolving process.



The nineteen coastal parishes of the Louisiana Coastal Zone divided into the four LCA study subprovinces. White lines designate the subprovince boundaries.

Subprovince 4

Problems, Opportunities and Proposed Project Types

Subprovince 4 encompasses the Chenier Plain between the Freshwater Bayou Canal and the Louisiana-Texas Border, including the entirety of the Mermentau and Calcasieu-Sabine basins. The problems affecting wetland sustainability in this subprovince are mainly altered hydrology. The three major rivers in the area all have navigation canals and jetty systems which disrupt long shore sediment distribution patterns and increase tidal exchange of energy and salt water into interior areas. The Upland Sub-basin of the Mermentau River has been altered to facilitate drainage by straightening and deepening the tributary channels. This has caused flood waters to reach the Mermentau Lakes Sub-basin faster where it is isolated from further drainage by a series of water control structures. These structures were built to minimize saltwater intrusion and maintain a freshwater reservoir for farming. The operation of this system leads to flushing of fresh water to the Gulf in the winter when water is plentiful, making this fresh water unavailable for the summer months when it is needed for agriculture and wetland sustainability.

There are several opportunities which may facilitate wetland restoration in this subprovince. Subsidence rates and depth of organic soil coverage in the area are comparatively low. Restoration of upland areas in this subprovince has the potential to alleviate some of the fresh water deficits which are currently being experienced in the coastal areas. In addition, dredged material is readily available from several navigation channels to create and nourish wetlands.

Restoration projects in this subprovince will focus on reducing tidal exchange between the Gulf of Mexico and interior areas to more historic conditions. This may be accomplished by restriction of the cross section at the Gulf shoreline or at interior

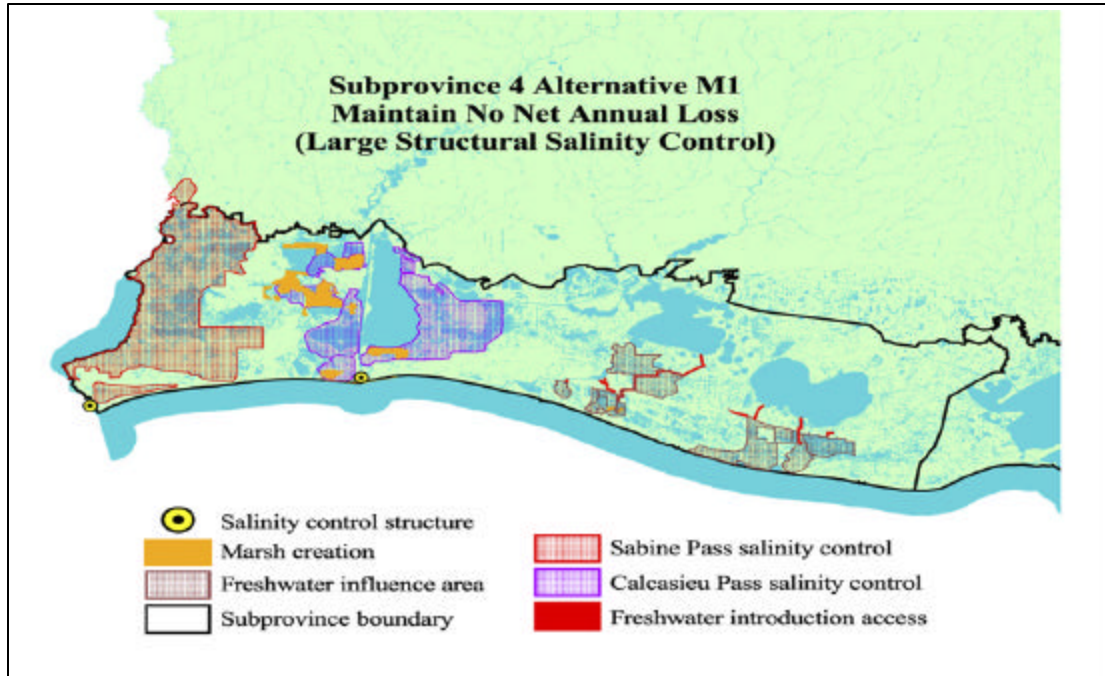
bayous. Also, we will focus on restoring a more natural seasonality to freshwater inflows and maximizing the influence area of the available freshwater. Maintenance of Gulf shorelines is also a high priority.

Accordingly, the alternatives in Subprovince 4 represent different ways to address the fundamental problem of increased salinities. The approaches are large structural salinity control, perimeter structural salinity control and structural and freshwater introduction salinity control.

Large Structural Salinity Control

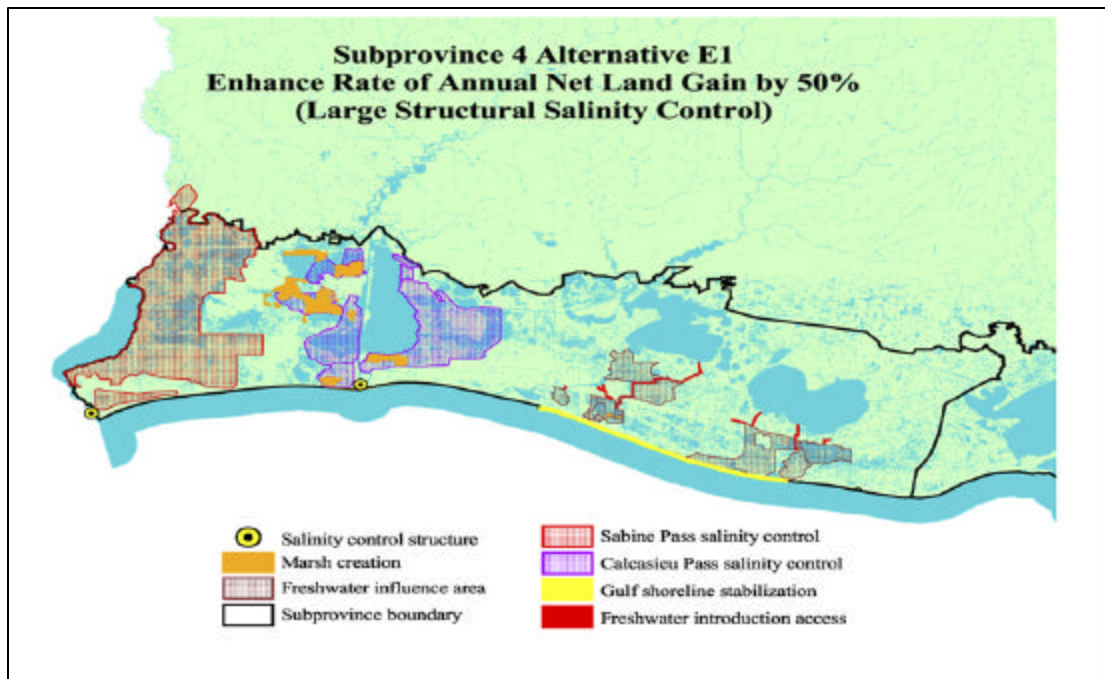
The foundation of alternatives developed under this approach is large-scale salinity control structures (i.e., locks/gates) at Calcasieu Pass and Sabine Pass. Such structures would be designed and operated to minimize the salinity increases caused by the deepening of these passes for navigation purposes. Theoretically, implementation of such an alternative could allow for modification or removal of existing upstream salinity control measures, thereby supporting the restoration of a more natural and less-managed hydrologic regime throughout the subprovince.

Maps of Large-scale Salinity Control Alternatives for Subprovince 4



Alternative M1 – Large Structural Salinity Control

Control salinity with structures at Calcasieu Pass and Sabine Pass. Introduce freshwater across Hwy 82 in several locations throughout the Mermentau Basin. Utilize the Calcasieu Ship Channel for beneficial use/marsh creation.



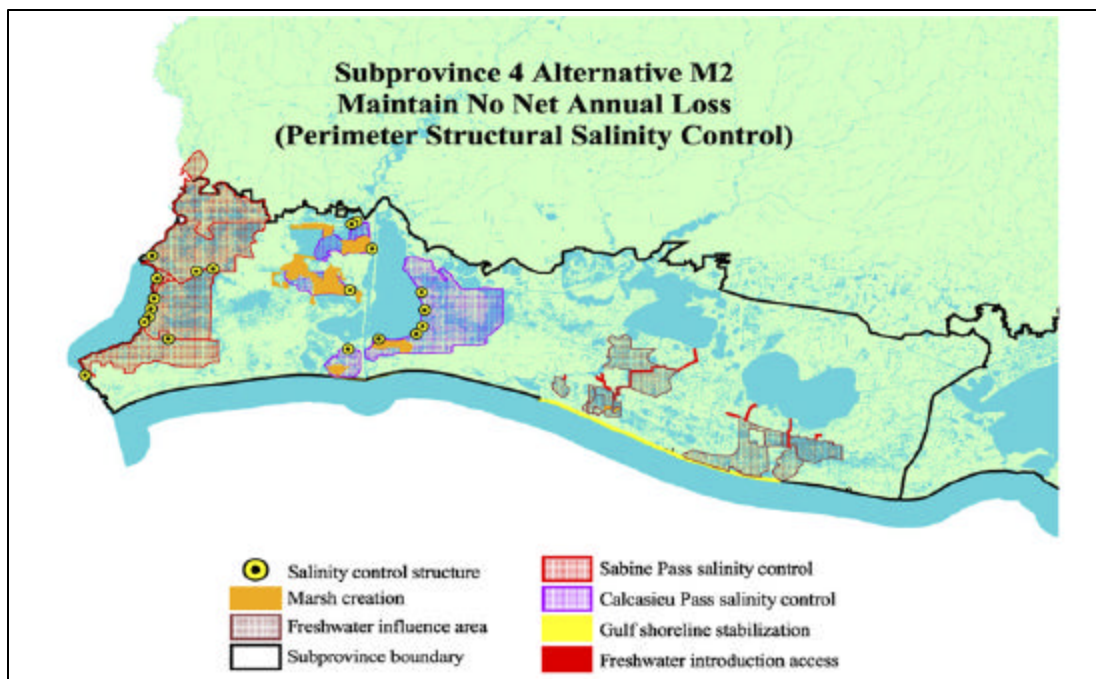
Alternative E1 – Large Structural Salinity Control

Control salinity with structures at Calcasieu Pass and Sabine Pass. Introduce freshwater across Hwy 82 in several locations throughout the Mermentau Basin. Utilize the Calcasieu Ship Channel for beneficial use/marsh creation. Stabilize Gulf Shoreline from Mermentau Ship Channel to near Rollover Bayou.

Perimeter Structural Salinity Control

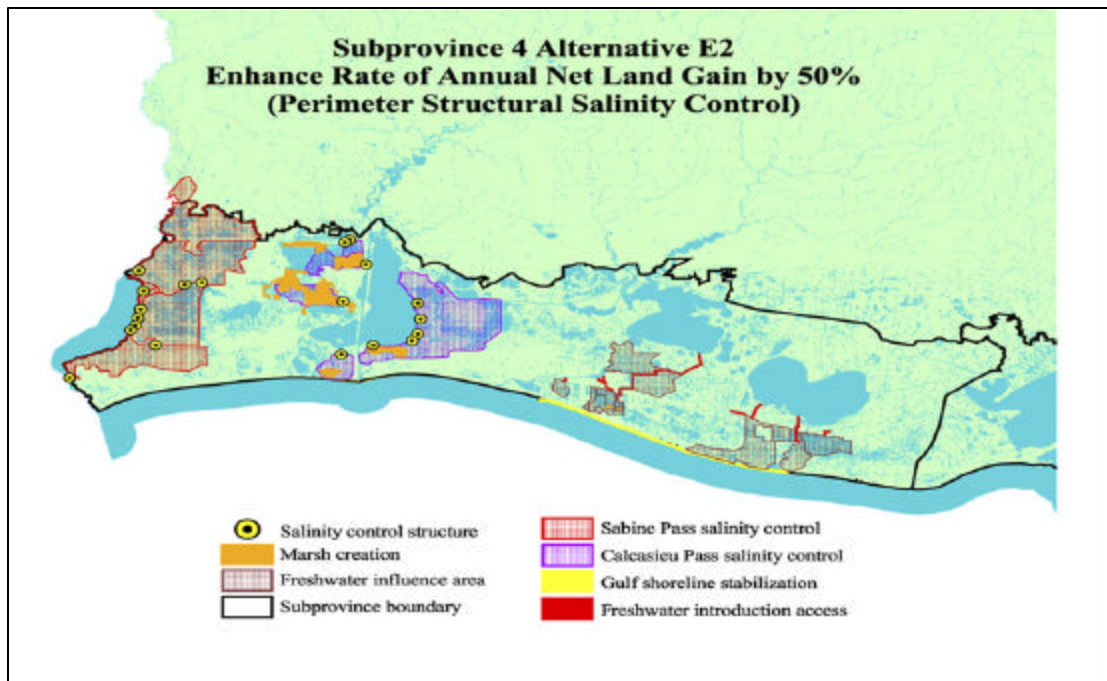
Alternatives developed under this approach are intended to reduce salinity impacts, while also avoiding any potential effects that locks/gates on the Calcasieu and Sabine Passes may have on navigation. Specifically, this group of alternatives would include small-scale salinity control measures around the perimeters of Calcasieu and Sabine Lakes; thereby reducing saltwater intrusion to adjacent wetlands and waterways. Such structures would be state-of-the-art, designed to minimize disruption of organism and material linkages. However, unlike the large-scale salinity control alternatives, a perimeter approach would likely not affect the current ecological character and social and economic uses of the Calcasieu and Sabine passes and lakes. This alternative would modify some existing perimeter and build additional perimeter control structures.

Maps of Perimeter Structural Salinity Control Alternatives



Alternative M2 – Perimeter Structural Salinity Control

Control salinity with structures at Oyster Bayou, Longpoint Bayou, Black Lake, Alkali Ditch, GIWW, Cameron-Creole, East Sabine, Black Bayou, and at the Hwy 82 Causeway. Introduce freshwater across Hwy 82 in several locations throughout the Mermentau Basin. Utilize the Calcasieu Ship Channel for beneficial use/marsh creation. Stabilize Gulf Shoreline from Mermentau Ship Channel to near Rollover Bayou.



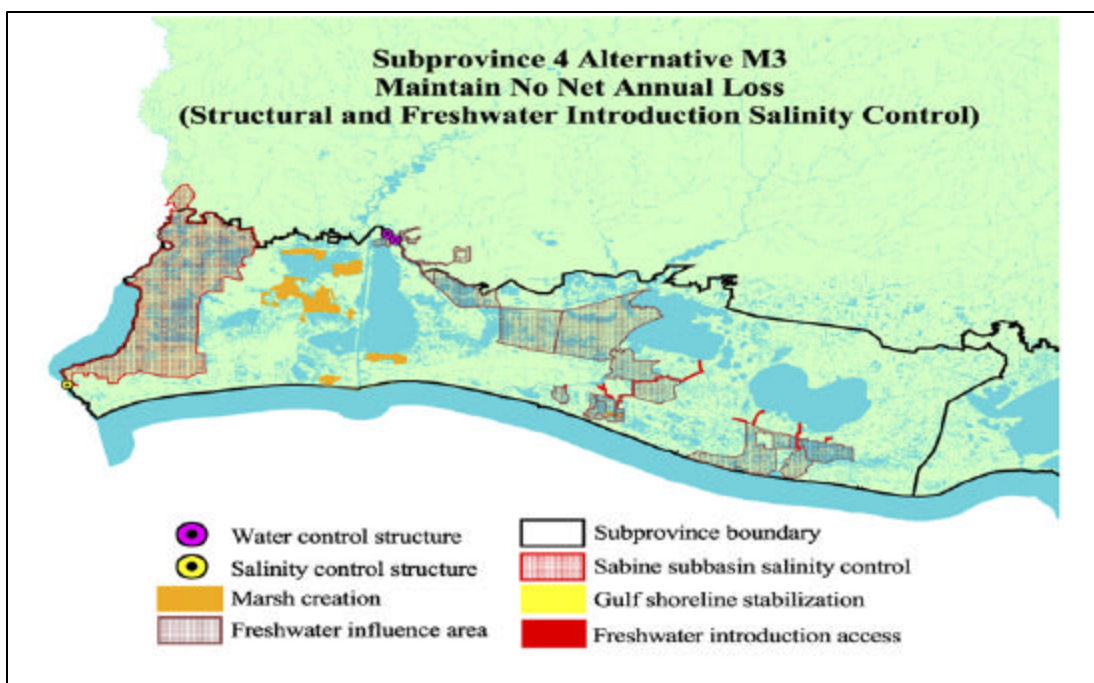
Alternative E2 – Perimeter Structural Salinity Control

Control salinity with structures at Oyster Bayou, Longpoint Bayou, Black Lake, Alkali Ditch, GIWW, Cam-Creole, East Sabine, Black Bayou, and at the Hwy 82 Causeway. Introduce freshwater across Hwy 82 in several locations throughout the Mermentau Basin. Utilize the Calcasieu Ship Channel for beneficial use/marsh creation. Restore marsh using dedicated dredging. Stabilize Gulf Shoreline from Mermentau Ship Channel to near Rollover Bayou.

Structural and Freshwater Introduction Salinity Control

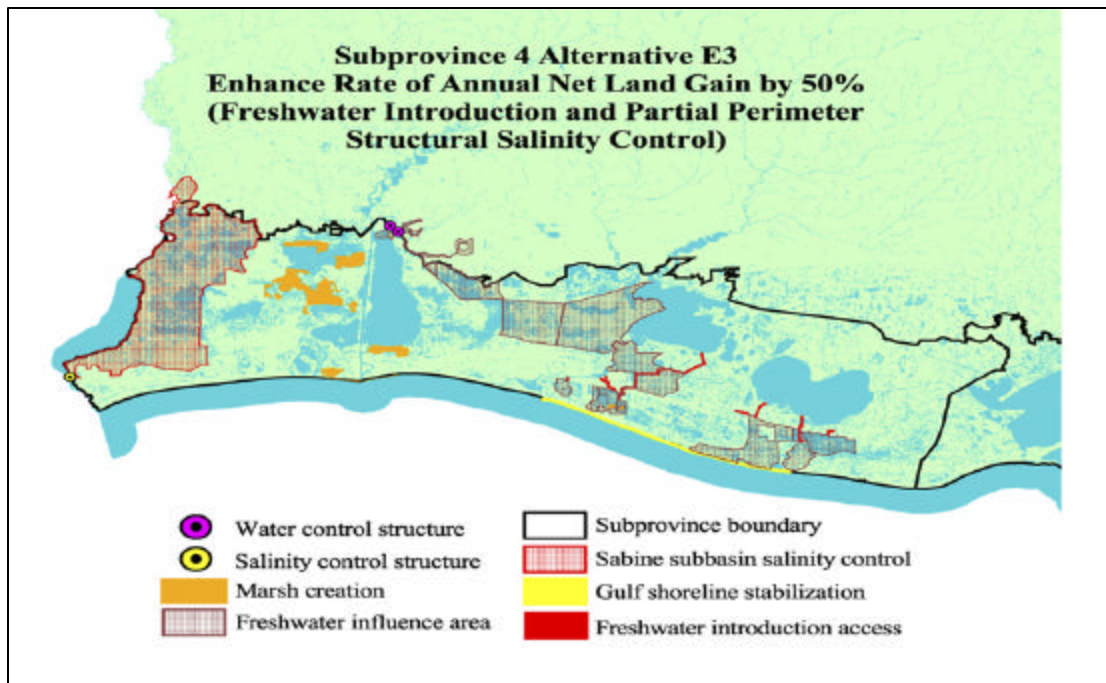
Alternatives developed under this approach rely less on structural salinity reducing features and more on hydrologic modifications, to bring additional freshwater into the northern portion of the estuaries, as the primary means for reducing salinities. Specifically, these alternatives would use culverts and other existing structures as conduits for increased flow of freshwater, which in turn would reduce salinity levels within the Calcasieu and Sabine estuaries. Freshwater introduction across Highway 82 in the Mermentau Basin will aide to reduce salinities in the Chenier sub-basin. Such alternatives would be intended to aid in the restoration of more natural hydrologic regimes, while having the added benefit of minimizing potential adverse socio-economic impacts associated with the structural measures considered in the first two approaches — particularly with respect to the restriction of organism and material linkages and impacts to navigation.

Maps of Structural and Freshwater Introduction Salinity Control Alternatives



Alternative M3 – Structural and Freshwater Salinity Control

Control salinity with a rock weir at Hwy 82 Causeway. Introduce freshwater in Calcasieu Subbasin at Calcasieu Lock and Black Bayou and across Hwy 82 in several locations throughout the Mermentau Basin. Utilize the Calcasieu Ship Channel for beneficial use/marsh creation. Restore marsh using dedicated dredging.



Alternative E3 – Freshwater Introduction and Partial Structural Salinity Control

Control salinity with a rock weir at Hwy 82 Causeway. Introduce freshwater in Calcasieu Subbasin at Calcasieu Lock and Black Bayou and across Hwy 82 in several locations throughout the Mermentau Basin. Utilize the Calcasieu Ship Channel for beneficial use/marsh creation. Restore marsh using dedicated dredging. Stabilize Gulf Shoreline from Mermentau Ship Channel to near Rollover Bayou.

The LCA, a Coastwide Plan

By understanding how the concepts from the Coast 2050 strategies interact to change the ecosystem, we can propose a balanced comprehensive coastwide plan that provides for a sustainable ecosystem. The subprovince alternatives will serve as a basis for future evaluations within the process being developed to select a coastwide restoration plan. To attain public input on the subprovince alternatives, their costs, benefits, and the future direction, study team members will be at Houma Municipal Auditorium – May 27; Estuarine Habitat and Coastal Fisheries Center, Lafayette – May 28; Lake Charles Civic Center – May 29; and UNO Lindy Boggs International Conference Center, New Orleans – June 2.